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ABSTRACT

The National Assessment of Educational Progress (NAEP) is an ongoing effort to obtain comprehensive and dependable data on national educational achievement. Reports and related assessment materials, such as assessment objectives and items used to measure achievement, have been developed to meet the needs and interests of educators. Several educators described their experiences using NAEP information to improve the learner's education experience. The NAEP model was used in the Kamehameha Schools of Hawaii for program evaluation. At Montana State University, National Assessment test items were used to survey knowledge, skills, and attitudes. NAEP sampling and data gathering procedures were adapted to surveys for use in doctoral research. Studies of science learning and science-related studies were incorporated in research training programs on higher education at Kansas State University. The Cheyenne Mountain School District used NAEP statistics for comparison between their students and an advantaged-urban group. NAEP demonstrated its capability of working with local school districts. The utilization of National Assessment materials in the Monterey Peninsula Unified School District is described. Test items and statistical data were used as a resource for evaluating and updating curriculum, instructional materials, and teaching in the Whitefish Bay High School. Primary type of information provided by the report: Procedures (Utilization) (Conceptual); Results (Utilization). (DWH)

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HOW HAVE YOU USED NATIONAL ASSESSMENT MATERIALS?

. . . RESPONSES FROM SIX EDUCATORS

No. AY-UA-50

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National Assessment of Educational Progress

Education Commission of the States
Suite 700, 1860 Lincoln Street
Denver, Colorado 80295

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FOREWORD

"HOW HAVE YOU USED NATIONAL ASSESSMENT MATERIALS?" This question was asked of six educators . . . Their stories unfold in the pages that follow.

For readers not familiar with the National Assessment of Educational Progress (NAEP), a brief overview may be helpful. The National Assessment is the first ongoing effort to obtain comprehensive and dependable data on education achievement on a national basis. The project reports on the current status of performance in various subject areas, including mathematics, reading, writing, art, music, science and social studies, and also provides information about changes in achievement over time. To help those interested in using NAEP findings, the project has developed reports and related assessment materials (including assessment objectives and items used to measure achievement) that are geared to meet the needs and interests of educators, legislators and the general public.

This collection of papers is "special" because the authors have described, in their own words, their first-hand experiences in using National Assessment materials as a resource to help solve a particular problem or concern. Their stories relate enthusiasm, inspiration, initiative and creativity. Reading between-the-lines, one can sense the ever-present challenges, frustrations and yes, even humor.

We hope the stories from these six educators will show others some of the many ways that NAEP findings and information can be used to improve the learner's education experience. Thank you, authors, for sharing your stories with us.

THE HAWAIIAN CONNECTION:

NAEP AND THE KAMEHAMEHA SCHOOLS

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NAEP, an acronym that resounds with stirring vibrancy, is recognized by informed educators in all 50 states as signifying the National Assessment of Educational Progress. Indeed, over the past 13 years, the National Assessment movement has emanated from its mid-America energy center throughout all of the continental United States. It also quietly traversed the Blue Pacific, crossed the sands of Waikiki and spread throughout the Hawaiian Islands. One of the strands of this migration climbed the lava hillsides of Kapalama Heights and entered the educational scene of The Kamehameha Schools. In this untried and unfamiliar environment, the NAEP model has been methodically dissected, each piece or component carefully scrutinized, and ultimately reassembled. But, akin to the home mechanic who boldly decides to repair his own car, we never put some of the pieces back and other parts ended up in new locations with different uses. Thus at The Kamehameha Schools, the

National Assessment model and materials were metamorphosed until the acronym NAEP might be also said to symbolize a New Approach to Evaluating Performance. This paper will present just the highlights of this "Hawaiian Connection" -- the coming together of The Kamehameha Schools and the National Assessment of Educational Progress. But first, a contextual word or so about The Kamehameha Schools.

Kamehameha's origins are rooted deeply in Hawaiian history. The schools represent the living legacy of Princess Bernice Pauahi Bishop, the last descendent of the royal Kamehameha family. Mrs. Bishop left her sizable landholdings for the founding and maintaining of these Schools. Classroom instruction, college scholarships, summer camps, Hawaiian culture, research and development -- the wide range of educational programs and rich traditions of the institution touch the lives of residents throughout Hawaii.

Established to provide education services for young people of Hawaiian ancestry, The Kamehameha Schools have grown dramatically since their founding in 1887. Today some 2,750 students are enrolled full-time in a Kamehameha program, more than 9,600 are enrolled part-time and another 27,000 participate in other programs of the schools such as

demonstrations, lectures and workshops. In addition, findings of the Research and Development Division have the potential to affect every child in the state -- and beyond.

Such wide-ranging activities make Kamehameha unique -- one of the most exciting education complexes in the country. Still, the schools constantly seek new and more effective ways to fulfill the education needs of the young people of Hawaii. The direction and scope of this continuing quest for quality is fueled in large part by multiple kinds of evaluation and assessment information. However, unique programs often require unique evaluation approaches -- approaches and procedures that need to be "home grown." At the same time, like the hybrid pineapple or papaya, a local variety is invigorated and strengthened by elements coming from outside the family. National Assessment has provided this energizing strain.

But, <u>where</u>, <u>why</u> and <u>how</u> has this "Hawaiian Connection" occurred? First, the "where." One rather large-scale evaluation effort of the schools Campus Program is labelled the Exit Skills Testing Program (ESTP). This project refers to an intensive in-house effort to identify expected student outcomes relative to <u>School Goals For Students</u> and to assess the degree to which the curriculum is effectively and

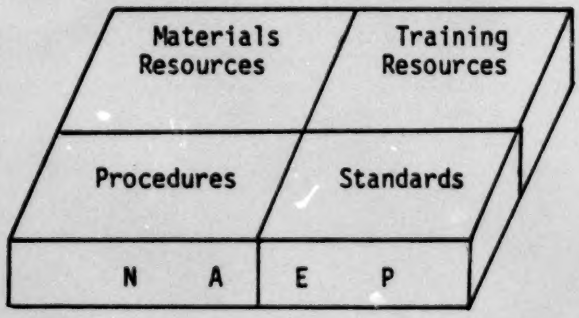
efficiently assisting students in achieving these skills. The designation of "exit" skills reflects the decision to base this curriculum evaluation on the tested performance of graduating seniors. In other words, ESTP focuses on the ultimate product of the schools and the extent to which these young men and women can demonstrate the expected levels of performance. The Exit Skills Testing Program is still in the infancy stage of development, and to date, four secondary school departments -- English, Mathematics, Science and Speech -- have developed and administered tests for assessment of their highest priority exit skills.

The other area where Kamehameha and NAEP have combined forces is in the development of basic skills assessment instruments for two alternative education programs for high-school-age alienated youth in the public education system. These projects, one in Kona, Hawaii, and the other on the "Friendly Isle" of Molokai, have produced localized or "Hawaiianized" tests in reading and mathematics to assess student acquisition of basic life-coping skills.

The answer to the "why" question -- why did the "Hawaiian Connection" come to be -- reflects the unique nature of The Kamehameha Schools mentioned earlier. The Campus Program enrolls a selective population of relatively high-achieving

students. The alternative schools serve largely youngsters with very limited academic skills. Both environments embrace a Hawaiian cultural milieu. Because of the specialized nature of these populations, standardized and other commerical assessment instruments have been of limited use for evaluating critical program outcomes. Thus, with a boldness tempered by realistic trepidation, the schools accepted the unavoidable conclusion that locally developed evaluation materials and procedures were required. It was also instantly apparent that help would be needed -- help that was expert, responsive and economical, but not prescriptive. In the search for this unlikely combination Kamehameha found NAEP.

Finally, "how?" How has NAEP provided this expert, responsive and economical assistance? The analysis of the NAEP model that was mentioned at the beginning of this paper led to the use of four components as the cornerstones of the "Hawaiian Connection." These included:



The first cornerstone used in developing new approaches for evaluating the exit skill levels of seniors and the performance in basic skills by alienated youth was securing and using NAEP materials directly. For example, The Kamehameha Schools obtained NAEP objectives booklets that were available in subject areas ranging from art to English to social studies. Teachers in the Campus Program reviewed the statements in the booklets as they struggled to articulate their ideas about the most important student skills. Words, phrases, and at times entire statements from the NAEP booklets were used in defining exit skills. Likewise, staff members of the alternative schools used the reading and mathematics objectives as guidelines for structuring basic skills tests in these two areas. The specificity of the objectives was particularly appreciated by the alternative education staff, many of whom were "grass roots" individuals with highly developed vocational skills, cultural sensitivity and counseling prowess, but with minimal formal education.

The use of "released" test items was a second way in which NAEP materials were directly applied in the Kamehameha evaluation system. The schools obtained all NAEP released exercises (items) and these served as a "raw" item pool in many subject areas. Following the difficult and tedious

task of matching items to instructional objectives, teachers selected a number of NAEP items for inclusion in tests. Several examples follow:

Test Area	Percent of NAEP Items Used
High School Math Exit Skills	80%
High School Science Exit Skills	12%
Alternative School Basic Skills	
Reading	26%
Mathematics	42%

In the above four tests alone, 116 NAEP released exercises were used. Only the naive or masochistic would fail to recognize the enormity of this contribution compared to the time, frustration and professional trade-offs that accompany the writing of 116 original test items by local classroom teachers who are already fully employed.

A third relatively minor use of NAEP materials, but one of major convenience, was the loan of "full size" graphics by NAEP for the items included in the exit skills tests. This permitted the direct duplication of the exercises and eliminated the trouble and expense of enlarging the published exercises prior to printing the test booklets.

In addition to the direct application of materials, a second cornerstone of the "Hawaiian Connection" was the use of NAEP as a training resource. For example, the objectives and released exercises were used as models in a number of disciplines, even though no specific objectives or items were replicated. This application was used by the teachers developing an exit skill writing sample. They reviewed the NAEP writing sample stimuli but opted to create their own actual stimuli, though based upon the NAEP model. Another case in which the exercises and objectives were used as models rather than in direct application was in the development of an exit skills test in Hawaiian culture. This area, of course, demanded local development, and the existence of item and objective formats was somewhat comforting to the Hawaiian Studies staff who were literally entering into an unknown world.

A National Assessment training resource that was used with undisputed positive impact was that of interpersonal contact. Even though Hawaii is thousands of miles away from Denver, a number of Kamehameha administrators and evaluators visited with key personnel from NAEP. In conjunction with attending conventions, extending personal vacations or specifically scheduling conferences, the "Hawaiian Connection" has maintained its vitality over the years. In

this regard, the annual Large Scale Assessment Conference has had representation from Kamehameha for the past five or six years and is viewed as a consistently superior experience.

Adopting several pieces of the NAEP procedural model became the third cornerstone of the NAEP - Kamehameha relationship. For example, the Exit Skills Testing Program utilized the concept of identifying differential difficulty levels of items based upon age level. Although the exit skills tests are, by definition, for assessing graduating seniors, eighth- grade students were also tested with the same items and achievement results compared for the grade levels. This procedure closely parallels the 13-year-old and 17-year-old testing program of NAEP. Several other National Assessment procedures were used in the Exit Skills Testing Program including setting the testing groups at 15 students and employing NAEP scoring methods in scoring writing samples and essay and oral responses in various subject areas.

The final cornerstone to be mentioned is the element that provides some degree of confidence and security to staff as they forage in the fields of local test development. Whether in the exit skill arena or assessing performance in

basic skills, local staff members need some validation that what is produced is of quality. A standard is needed. The National Assessment model has provided such a standard in at least two dimensions. First, the body of NAEP objectives in a given subject area was used as a standard of comprehensiveness for the sets of exit skills that were drafted by departmental areas. Second, the actual student results on both the exit skills tests and the alternative education basic skills tests would have lacked any reference points had it not been for the NAEP items that were included. The national "norms" for ages 9, 13 and 17 on NAEP items provided one valuable perspective.

So, the "Hawaiian Connection" has been made. The NAEP cornerstones have provided a structure for a new approach to evaulating performance at The Kamehameha Schools. The "connection," however, is a very young one -- one that epitomizes the term "pilot." Yet, the staff of the schools is growing in confidence that the Exit Skills Testing Program will indeed provide guidance in curriculum modification and development. An equal optimism is building within the alternative education programs that localized assessment of basic life skills will indeed lead to more effective programs and more successful students. For the contribution made by the National Assessment of Educational Progress:

NAEP
MATERIALS
Mahalo
NAEP
STANDARDS
NAEP
TRAINING
NAEP
PROCEDURES

USING NATIONAL ASSESSMENT IN DOCTORAL RESEARCH

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Over the past several years a few doctoral candidates at the University of Mississippi and I developed and pursued an interest in describing some of the educational achievements of rural youth. Specifically, we investigated the citizenship and social studies attainments of 13-year-olds attending schools in some rural areas of Mississippi and South Carolina. We used test items released to the public domain by the National Assessment of Educational Progress (NAEP) to survey the knowledge, skills and attitudes of selected populations. National Assessment sampling and data-gathering procedures were studied and adapted to these local surveys.

The purpose of this article is to share highlights of these experiences in dissertation research with interested readers who are already familiar with National Assessment's mission and nature.

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*Formerly at the University of Mississippi

Background

The idea of using National Assessment in doctoral studies occurred to me while listening to a presentation by Bob L. Taylor at the 1973 annual conference of the Association for Supervision and Curriculum Development. Taylor, professor of education at the University of Colorado, described the NAEP model and discussed its application to state and local assessments. Also, he talked about the implications of using the model for curriculum development and accountability programs. I was intrigued by his observation that National Assessment would be most useful in situations where the focus is on program evaluation, rather than on judging the performance of individual students or teachers. As the accountability movement gained momentum, I thought it would be worthwhile to demonstrate the efficacy of an alternative to the norm-referenced standardized achievement testing of thousands of students.

In my work with doctoral candidates in the field of secondary education, I was concerned that they identify research problems for which they could obtain data readily and which, at the same time, were of interest to a wider community of scholars. Surveying the progress of local groups of students in relation to the goals and objectives developed and validated by National Assessment seemed to satisfy my emerging criteria.

Therefore, I began to introduce the idea to prospective dissertation writers one at a time over a period of years. All of the candidates had interests in citizenship and social studies education and were acquainted with rural schools in the South. Some of them chose to research other kinds of problems, some of them with other professors. To date, three doctoral students have elected to survey rural 13-year-olds in either citizenship or social studies. Two of the studies were conducted in northern Mississippi and one in northeast South Carolina. In undertaking these investigations, we felt we would be making small contributions to knowledge in an area -- rural education -- that has had an abundance of information concerning the environment for teaching and learning and a scarcity of facts about the outcomes of schooling. We hoped in addition that candidates might develop some marketable research skills.

A Summary of Procedures Used in Three Dissertations

Approximately 12 to 15 months were required to see each study from conception through final acceptance by a dissertation committee. Each paper represented a major investment of time, effort and other resources on the part of a single researcher, working with only minimal financial assistance. A recapitulation of the procedures used in the three studies is presented in the following paragraphs.

These steps suggest those that might be followed by other researchers wishing to apply NAEP in new situations.

The Research Proposal

An important early step was the development of a formal research proposal. The proposal included a concise statement of the problem to be investigated and listed specific questions to be answered by the study. The researcher identified the assessment area (citizenship or social studies) to be addressed and the target population (example: 13-year-olds attending schools in communities of less than 3,500 persons within 75 miles of Oxford, Mississippi) to be surveyed. A sampling design was presented in the proposal, along with an outline of procedures to be followed in collecting and analyzing data.

Assessment Materials

The materials used to conduct these assessments were drawn from the items National Assessment released to the public following publication of the results of the first nationwide surveys of citizenship and social studies. NAEP provided copies of the released exercises (items) and directions for making a narration tape to accompany the group-administered exercises. We obtained recordings of musical selections and copies of photographs that had been included in the stimulus materials and borrowed a print of a

filmed episode NAEP had used to elicit responses reflecting attitudes.

Exercise booklets were designed and prepared so that no student would be given all of the exercises or spend more than a single class period on the assessment. Some of the clusters of exercises were to be administered to groups of students, others to individuals. The difficulty levels of the booklets were equalized in accordance with NAEP practice. Reference to National Assessment publications and a few long-distance telephone consultations with NAEP's Department of User Services were helpful in this developmental stage of our studies.

The Dissertation Committee

A "necessary evil" peculiar to doctoral research is the dissertation committee. Given that, it is essential to the sanity and general well-being of all concerned to form a supportive group of graduate faculty members to guide the candidate's research effort. For our studies, professors with interests in citizenship or social studies, and assessment and research design were recruited. Prospective committee members were consulted as each proposal was being developed. When an assessment plan was nearly complete, a dissertation committee was organized and constituted formally.

The committee approved the proposal with amendments. This officially sanctioned document thereafter served as both blueprint for the study and contract between the candidate and the committee. Each researcher continued to consult committee members for the duration of the project.

Conducting the Assessment

To carry out the planned assessment, the doctoral student first identified the schools in which the target population was enrolled. Schools were selected randomly for the assessment sample. Administrators of the sample schools were contacted and lists of all 13-year-old students were obtained. Letters typed on University letterhead stationery were sent to the administrators of the schools to solicit their participation. Appointments for the administration of the assessment exercises were made with the principal of each sample school. Students to be included in the survey were selected randomly by the researcher from the lists of 13-year-olds.

On the appointed date and time, the researcher arrived at the school with the materials and equipment necessary to conduct the assessment. The principal either directed or escorted the doctoral candidate to the area set aside for the assessment and sent for the selected students. Following a brief explanation of the study, the exercise booklets were administered to the students.

Reporting Assessment Results

Responses to the assessment exercises were scored according to NAEP criteria for acceptable responses. The percent of students giving acceptable answers was tabulated for each exercise. The percentages of males, females, blacks and nonblacks giving acceptable responses were tabulated for purposes of comparison. The performance of each local sample was compared with that of the NAEP extreme rural sample. Results and comparisons were presented for each of the assessment exercises administered (36 citizenship exercises or 58 social studies exercises).

Producing an assessment report in dissertation form proved to be especially laborious, given the exercise-by-exercise approach we had elected to follow. The doctoral candidates found themselves compelled to write in an unfamiliar style. They had to develop their own patterns of narration since they were pioneers in the writing of assessment reports for dissertation committees. Advising the researchers was difficult because the projects were novel to committee members. Perhaps there are better, less cumbersome approaches to writing such studies. If so, they should be eagerly sought and warmly embraced.

Outcomes From Using NAEP in Doctoral Studies

In general, the rural 13-year-olds surveyed by the doctoral students performed less well than the earlier NAEP

extreme rural samples on citizenship and social studies exercises. Such findings were not unanticipated since the samples were taken in the southeastern United States, the region that consistently has scored lowest on all subject areas assessed by National Assessment. However, one might expect there to be exceptions to the rule, and local assessments are the only way to determine the standing of local school curricula and students with respect to National Assessment's goals and objectives.

These studies demonstrated the feasibility of applying National Assessment materials and techniques in doctoral research on local schools. The procedures followed produced considerable amounts of new information about education programs in selected rural areas with economy and efficiency. In one of the assessments, administration time was reduced by 86 percent of what would have been required to test the entire population with a norm-referenced standardized test of 70 minutes duration.

The three doctoral candidates contributed some information concerning the outcomes of rural schooling to the rural education literature. In the process they gained first-hand experience with NAEP exercises and methods, a working knowledge of National Assessment on a reduced scale.

By personally gathering the data for their research, they saw rural students and their schools and developed a "feel" for the people whose performance they were documenting and reporting.

There appears to be a potential benefit to students in local schools by assessing their performance on NAEP exercises. The vision of university scholars working hand-in-hand with school officials to determine the extent to which youngsters are meeting widely recognized goals is a pleasant one. It is, however, one which did not materialize in the course of these studies. More deliberate efforts to involve local school administrators in using the survey results and to obtain follow-up information on curriculum improvements would be appropriate in future applications of National Assessment to dissertation research.

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STRATEGIES FOR INCORPORATING NAEP MATERIALS IN RESEARCH TRAINING PROGRAMS IN HIGHER EDUCATION

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Graduate students developing research skills in today's world require a variety of research-related competencies. The need for statistical and research design capabilities is obvious and is almost always provided for in formal courses. Students also need a broad knowledge of the literature related to their area(s) of specialization. In particular they need to be familiar with "bench mark" studies that can provide foundations on which to build their own research programs. In many instances they will need to be skillful in developing test instruments and/or in locating resources for instrument development. Finally, students must develop the ability to interpret and apply research findings. It seems likely that all but the first of the competencies listed above often will be gained in informal, one-on-one settings under the leadership of a major professor.

Students doing graduate work in the area of science education are particularly fortunate in regard to the literature resources available. There have been a number of broad-based studies in science education that have provided a picture of the current status of science education nationally. Weiss (1978) and Stake and Easley (1978) have completed studies of the status of science teaching, curriculum and current practice. Others (Helgeson, Blosser and Howe, 1977) have provided a comprehensive summary of the literature since 1955. Several groups have attempted to digest and react to these results. Project Synthesis (Harms and Yager, 1981) has made a valuable attempt to provide the next step by suggesting the directions in which science education should move.

As valuable as these studies are, none of them has supplied the broad long-term assessment of science learning and science-related studies that is provided by the National Assessment of Educational Progress (NAEP). The National Assessment studies, conducted since 1969, give a sampling of the science knowledge and attitudes of students at selected age and grade levels. In addition, careful attention to instrumentation and sampling procedures in repeated assessments makes it possible to observe trends in the data for a learning area. These studies, combined with the

others listed above, provide the avenue through which we can begin to furnish most of these competencies presented at the beginning of the article.

In using NAEP materials with my students, I point out that the NAEP studies provide an indication of the knowledge levels of selected age groups and that repetitions of these studies have provided a measure, on a nationwide basis, of the trends in science learnings and attitudes. Further, I point out that data are available for regional populations and that some states have used all or parts of the NAEP instruments to determine local and statewide achievement levels. I might discuss the possibility of using NAEP items in assessing the knowledge or attitudes of students in our own research efforts.

NAEP studies also provide science educators with data in the auxiliary areas of environmental and energy education. Further, knowledge of the data on support skills such as reading and mathematics is valuable to science educators as they conduct their work. It is imperative that students stay abreast of NAEP activities. Students discover that the NAEP Newsletter is a valuable and convenient source of information about NAEP's work and contains summaries of assessment findings. They are urged to add their names to

the mailing list (free) so that they will be able to follow NAEP's activities. The Newsletter forms a primary avenue to my students' overview of NAEP studies.

Typically, I grab my folder of Newsletters and point out to students items such as the following:

(1) Fall 1980 issue contains a 1969-70 through 1980-81 timetable of the tests.

(2) April 1980 issue reports on women's mathematics achievement.

(3) The Winter 1980-81 issue says that science will be added to the 1981-82 assessment.

(4) The December 1978 issue reports a summary of the assessment of the energy-related knowledge of young adults aged 26-35 and shows that adults lack facts in this area.

(5) Various issues announce the variety of products NAEP provides, including summaries of results, objectives for each learning area, the released assessment items and a variety of kinds of analyses such as comparisons for public and private schools.

(6) The October 1978 issue reports a summary of the NAEP health knowledge study,

and so on.

A particular situation in which we applied NAEP knowledge was in regard to a Department of Energy Faculty Development Grant. Thirty science and social studies teachers were to be brought to the Kansas State University campus for an intensive two-week energy education program. At the time the grant proposal was prepared, we decided to use the "Energy Inventory" prepared by the Biological Sciences Curriculum Study. It became apparent that this instrument was not going to assess the full range of cognitive and attitudinal learnings we hoped would be the outcomes of the training program. Further, we wanted an instrument that had been designed for use with adults.

We ordered two NAEP publications: Technical Information and Data from the 1977 Assessment of Health, Energy and Reading; and Energy Knowledge and Attitudes: A National Assessment of Energy Awareness Among Adults. These reports were examined and we agreed that an instrument made up of the NAEP items used in this study was appropriate for both the content and population of our institute.

An instrument was developed and administered. While the results have not been fully analyzed, simple comparisons show significant gains on a pre- and post-training administration. The use of NAEP items and materials clearly

demonstrates to our students the value we place on NAEP efforts and shows them how NAEP materials can be employed.

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THE CHEYENNE MOUNTAIN EXPERIENCE

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It is my intent to discuss briefly how local school districts may work cooperatively with the National Assessment of Educational Progress (NAEP). I shall do so by describing a project which was undertaken and completed that benefited our particular school district. You should understand one thing here at the outset -- I am not a philosopher, never have been, and have no plans to be! I will not try to deceive you by telling you that here is a foolproof method by which you can solve all of your educational problems. I am in the trenches, like most of you, with the usual amount of pressure and criticism, so my approach is practical. I should mention that as a result of our cooperative project with NAEP, we plan to use their data on a continuing basis in the future. I suspect that many of you would be able to use their data effectively in your own programs.

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Cheyenne Mountain School District 12 is a small, suburban district on the southwest edge of Colorado Springs. We enjoy a relatively high per-pupil expenditure, a low pupil-teacher ratio and students who come from college-oriented homes. Since approximately 85 percent of our graduates go on to college, we definitely are college preparatory. As in most districts, problems exist. The problem that brought about our relationship with NAEP was: our students traditionally score two to four grade levels higher than national norms on standardized tests. Maybe we should not complain. On the other hand, it occurred to some of us that our students should score well on these tests, particularly when the total environment of our students is considered. The question arose: how do our students stack up with students from around the country whose socioeconomic circumstances are similar?

I had known of National Assessment since its early days, but like so many others, I was uncertain as to whether it was operating in the best interests of public education. I remember, as a matter of fact, that I was apprehensive about the project's intentions. At this point, I am very comfortable with the idea that NAEP does have a wealth of experience, expertise and data that can be useful to school administrators. After discovering that NAEP headquarters

were in Denver, I wandered into their offices and expressed my concerns.

NAEP staff and I put together a plan whereby Cheyenne Mountain 9-year-old students would be assessed in mathematics, and the results then compared with NAEP's advantaged-urban group. Our students fit nicely into this particular category. We found that NAEP could provide specific information for comparisons: i.e., data by geographical region, sex, size and type of community, level of parental education and so forth. That was just what we had been looking for, an available data bank that gave us the capability of making our desired comparisons.

Financing is difficult these days as you know; therefore, we had to devise ways to keep expenses DOWN. Obviously, the best way to do that was to try a do-it-yourself system. We decided to prepare our own exercise booklets. (We called this startling new process the MIMEOGRAPH TECHNIQUE.) The most unusual aspect of the project was our use of volunteer parents to score the booklets and tabulate results. The plan was essentially set. Now, for the administration of the assessment.

Since we are a small school district, our total 9-year-old student population was only 120 youngsters. Following very closely the procedures used by NAEP in its nationwide assessments, we administered 65 items that we had selected for inclusion in the item booklet. These were exercises representing each of NAEP's five major mathematics goals. It is important that school district learner objectives be compatible with NAEP's. Ours fit beautifully. We were extremely careful in conducting the entire project in order to keep our statistics clean. We wanted no room for criticism. NAEP procedure called for a recorded voice to present all instructions and read each exercise in turn to the students, even though all directions were printed in the booklet. NAEP insists on minimizing the possibility of student misunderstanding, so we made the tape following all instructions and timing information established by NAEP. The assessment was structured so that a specified amount of response time was allowed after each exercise had been orally presented. Total assessment time was about 55 minutes.

What did we do after test administration? If you will recall, I mentioned that volunteer parents were a very important part of the project. Since the building principals knew those parents who were willing, capable and

interested in participating in such a project, the selection was left to them. Twelve parents representing our three elementary schools volunteered their time to score the assessment booklets.

We decided that a training session for the scorers was critical. We had no idea of the time that would be required to prepare the scorers for their task. Neither were we able to estimate the number of hours or days that would be necessary for scoring and tabulation. In our training session, the reason underlying the project was explained, a brief introductory filmstrip depicting NAEP history and capabilities was shown and the scorers were given step-by-step instructions on exactly how to score the test exercises. In a very short period of time the scorers understood their role in the project and were able to score in a consistent and reliable manner.

We all were surprised when the scoring process was completed in one day. Twelve volunteers scored over 7,000 exercises -- that is over 600 each! Scoring was completed in an ordinary working day, and it was done at very little cost to the district other than coffee and doughnuts! We were completely satisfied with the accuracy of the scoring.

Following the scoring session, we designed forms on which we could tabulate results. About a week after the scoring session, the same 12 volunteers returned to hand-tabulate scores on our homemade forms. As mentioned previously, we had no way of accurately estimating the hours that would be utilized in the tabulating process. But, again, we were pleasantly surprised. Tabulating took approximately the same amount of time as was required for scoring. By this time our very dedicated volunteer parents had completed the nasty part of the project in much less time than any of us would have guessed, saved the district a significant amount of money and had become extremely interested in the final results.

The entire process was considered a pilot project to determine whether it would produce worthwhile results. Since it was a pilot project which had some possible implications for NAEP, National Assessment assumed the expense of data entry and computer time. Please do not expect that luxury in the future. Our tabulation sheets were sent to NAEP and, in a relatively short time, printouts were in our hands.

Two very important questions were answered: (1) Cheyenne Mountain 9-year-old students compared favorably with their

nationwide counterparts in mathematics; and (2) National Assessment did have the capability of working closely with a small local school district in a relatively inexpensive manner. Beyond these two answers another important aspect of the project came to light: a number of doors or avenues were opened for future consideration. Let me give some examples of ways in which districts may use NAEP data:

- First and basic to the entire idea, students may be compared with others like themselves on each of the items.
- Data are available for comparisons by region of the country, size and type of community, sex, grade level, level of parental education and so forth.
- Information may be obtained from each building for comparative purposes. In our case, each principal had prior knowledge of and supported this approach.
- It is possible to obtain information concerning the students in each classroom; however, in our case we chose to postpone that particular avenue until some time in the future.
- If exercises are consistent and compatible with districtwide learner objectives, it is a simple matter to pick out program weaknesses, strengths, trends and so

forth, especially as they relate to specific exercises or groups of related exercises.

- Curriculum change or alteration can be made quickly and effectively after an assessment project such as this.

- You can economize! We estimated that our project COULD have cost a minimum of $5,000 -- it cost us less than $250!

- The FLEXIBILITY is, in my estimation, the single most important feature of our project. You may design your assessment to fit your own special needs, collect data that are important to you and then decide how you wish to use results in improving your programs.

What has happened to us as a result of our cooperative project with National Assessment?

- We have assessed both 13-year-old and 17-year-old students in mathematics.
- We have conducted a science assessment of our 13-year-old students.
- We recently completed a writing assessment of approximately 150 13-year-old junior high students.
- Our intentions are to continue on a cycle basis and reassess later. We also plan to conduct initial

assessments in other areas, such as reading, social studies, music, art and career and occupational development.

- We deliberately involved teachers on a nonthreatening basis; therefore, all teachers cooperated and most feel good about future implications for improvement of our instructional programs.
- We will continue to involve as many people as possible and be completely open in reporting results. Our School Improvement Committee (Accountability), faculty, administration and Board of Education are advised periodically of new assessment projects and progress made on old projects. As a matter of fact, these groups are actively involved as much as possible.
- Finally, there is some excitement over the fact that we now do our own computer work. Our high school mathematics department chairman developed a computer program that provides the information that NAEP initially provided, and this will be an ongoing project for the computer programming students in the high school.

We believe that NAEP has something to offer school districts if staff and administration have the desire to learn more about their students. I am not saying that NAEP's approach should replace standardized testing.

Rather, I believe that the NAEP approach could be used in conjunction with standardized testing programs, thereby giving district personnel an opportunity to look at things in another light. It can be a valuable tool in strengthening curricular programs and a very definite help for teachers in goal- or objective-oriented situations.

I have given you no magic, and very little philosophy, but I hope that the simple project which has been described may be of help to you in your future plans. Neither have I given you any sort of formula which is suited to each of your situations. I do believe, however, that there is such flexibility available in working with NAEP that you are free to pick and choose and, consequently, devise a plan of action to fit your own unique needs.

School districts CAN accomplish many things without a great deal of money, highly paid consultants or elaborate research facilities. People in Cheyenne Mountain School District have proven this.

PROGRAM DEVELOPMENT UTILIZING NATIONAL ASSESSMENT MATERIALS IN THE MONTEREY PENINSULA UNIFIED SCHOOL DISTRICT

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In the late 1960s, a survey of the parents in the Monterey Peninsula (California) Unified School District was conducted to gather information on their perceptions of the district's education program. The results were not unlike the more recent Gallup Poll findings -- the basic skills programs needed improvement along with a need for better discipline in the classrooms and playgrounds. An adjunct part of this study was a survey of the local business and agency employers. Their messages were clear -- too many of the high school graduates could not adequately read, compute, spell, write or follow directions.

This information set the stage for convening an array of curriculum review committees in the early 1970s to prepare recommendations for the resolution of the concerns identified. The ensuing dialogue was open, honest and filled with emotion. Some factions of the English teachers wanted the students only to be creative in their written

compositions. The skills of writing with complete sentences and coherent paragraphs were of secondary and tertiary value. Others held a different view. Similarly, there were factions among the math teachers. Some held that computing was of primary importance with little or no time to be given to the applications of math in problem situations; others felt problem-solving skills were of great importance.

As these deliberations continued, the essence of what the parents and employers were saying tended to be lost or interpreted to fit particular biases. The need to look to other sources as a means of resolving the issues led to National Assessment.

Inasmuch as the major impasse was centered in writing, the NAEP reports on the 1969-70 writing assessment were obtained. The description of the methodology employed in preparing the objectives, the test items used, the national scope of the assessment and the findings impressed those involved in the deliberations. Unquestionably, this review of the first writing assessment report did more to reduce some of the well-entrenched provincialism among the staff than two years of highly charged committee meetings. A kind of consensus finally emerged, and as an unexpected consequence a proposal was made to model the NAEP assessment

approach in the district. No longer were community concerns to be essentially ignored, or formal assessments of student learning perceived to be necessary threats or infringements on the instructional methodology.

The development of criterion-referenced objectives in reading, writing and mathematics was to be followed by assessments of students' progress to be conducted at the end of grades 3, 6, 9 and 12. Subsequently, the Board of Education adopted a policy requiring the attainment of specified minimum proficiencies in reading, writing and mathematics as a requirement for high school graduation, beginning with the class of 1972. This policy predated the current proficiency movement by a number of years.

The basis for the district's writing objectives and test items was found in the NAEP released materials from the 1969-70 assessment. Since the reading and math assessments had not yet been conducted, district-developed objectives and test items were used in these areas. Later, as materials from the NAEP 1970-71 reading and 1972-73 mathematic assessments became available, modifications and/or additions were made to the district's objective and item banks.

There is no doubt that this early utilization of NAEP's approach to education assessment had a significant impact on the instructional program development and implementation in our district in the following ways: (1) the beginning of a better balance between program processes and program outcomes was established and (2) modifications were made in teacher staffing arrangements to better ensure the attainment of the desired learning outcomes. This is to say that the interjection of the NAEP format into the district's instructional program deliberations stimulated both philosophical and empirically based thinking about "how do we know" and "what does it mean" in curriculum program planning, implementation and evaluation.

The second application in utilizing the NAEP material began several years ago with the 1975-76 citizenship/social studies objectives and released test items. This application took the form of assessing all graduating seniors with the available NAEP test items along with a number of locally developed questions. A matrix sampling format was used in which the items were divided into three sets of tests. The results were reviewed by a committee of junior and senior high school social studies teachers. These data in turn provided a basis for a year-long review of the district's social studies curriculum at the junior and senior high school levels.

The payoff from this exercise was in the form of (1) an increased cognizance among the teachers of the differences between the district's written or prescribed social studies curriculum and the descriptive curriculum, or what is being taught in the classroom; (2) an awareness of apparent omissions and lack of next higher grade level reinforcement of important social studies concepts; and (3) a renewed realization on the part of the local school administrators of the need for increased and improved supervision and monitoring of classroom instruction as a component of the district's quality control measures.

The third application is currently underway with the 1976-77 NAEP science released items. This approach is similar to the aforementioned social studies plan. The age 9 and 13 items, along with the additional district-developed items, were randomly assigned to four test sets and administered to students at the end of grades 4, 5, 8 and 9. The findings are to be reviewed by a committee of elementary and junior high teachers. This is to be followed by a review of the district's prescriptive and descriptive science curricula.

In the way of summary, the experiences in this district with the NAEP materials can be characterized as an aid in

the effort to improve instructional program accountability in several ways. First, the NAEP objectives and released test items provided a direct connection to a nationwide base for identifying, extending and/or confirming local instructional program objectives. This has served to partially negate some of the insular thinking that seems to be indigenous to small-district program planning and development. More often than not, experience has shown over the past years an acceptance on the part of staff members of outside, prestigious sources of information.

Second, the NAEP-developed objectives in the various subject areas are well-considered both in terms of scope and level so as to be useful as program goal indicators. They can thereby serve as an aid in maintaining a focus on the intent of the programs. In a somewhat zealous need to develop learning or outcome objectives, there is a tendency to focus on easy-to-measure trivial and lower-level cognitive learnings at the expense of higher-level and affective outcomes. In this respect the goals or real intent of the programs often can be lost.

Third, there has been a cost-effective contribution in utilizing NAEP material. While there are still adamant defenders of the local curriculum turf and needs to reinvent

materials, the quality of these efforts, while notable, is at odds with the availability of the district's resources.

USING NATIONAL ASSESSMENT AS A RESOURCE FOR EVALUATING AND UPDATING CURRICULUM, INSTRUCTIONAL MATERIALS AND TEACHING

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Whitefish Bay High School is a four-year public high school, located in an affluent suburb of Milwaukee, Wisconsin. Approximately 90 percent of the graduates continue their education after graduation at four-year colleges and universities. The curriculum emphasis is clearly college preparatory.

On a periodic basis -- usually five-year intervals -- specific curriculum areas are scheduled for a systematic study and assessment for the purposes of evaluating and updating curriculum, instructional materials and teaching. During the 1980-81 school year, the social studies program (K-12) was the focus of such a study. Areas of strengths and weaknesses were identified and concerns expressed. Recommendations for improvement were made in the context of the district's educational philosophy, emerging trends in social studies education, sound principles of learning and

concern for helping to prepare young people to function adequately in the 21st century.

Early in the study, social studies staff expressed a serious concern over the adequacy of curriculum content, materials and instruction in providing students with mastery of basic social studies skills. In response to this concern, the social studies staff proposed a three-pronged approach:

1. formulating a distinct statement of essential learner outcomes in social studies skills that the curriculum should emphasize;
2. designing a skills-assessment instrument to be administered to graduating 12th grade students to determine student mastery of the skills and processes objectives; and
3. modifying curriculum and instruction to address inadequacies revealed by the results of the skills assessment.

The social studies curriculum study committee identified eight major categories of essential social studies skills -- together with several subskills within each of these major categories -- that students should have mastered upon graduating from Whitefish Bay High

School. The list of these social studies skills objectives is shown in the Appendix.

Next, the author devised an instrument comprising specific test items assessing each subskill within each major skill category. At this point, it was found that test items and statistical data released following assessments conducted by National Assessment of Educational Progress (NAEP) were extremely useful as a source for well-designed, credible questions. NAEP produces packets of released test items with accompanying descriptive material for each item: objective and subobjective, whether the item was group or individually administered, amount of administration time allocated to each item, age group(s) to which the item was administered, how the item was scored and percent correct for each item by various reporting groups. NAEP items from the 1971-72 and the 1975-76 citizenship and social studies assessments were reviewed to ascertain whether they corresponded to the skills objectives identified by the local social studies curriculum study group. Of the 75 items on the local skills-assessment instrument, about one-third were from NAEP.

The instrument was administered to all graduating seniors in late May 1981. The student responses (class results and student response matrix) were computer scored and a question-by-question analysis was performed by the author. For the NAEP test items in the assessment instrument, it was possible to compare the local group of examinees with a national sample of examinees. The baseline data provided with the NAEP test items enabled us to make some meaningful comparisons of Whitefish Bay students with a corresponding national sample.

The item analysis revealed some major deficiencies in projected student mastery of basic social studies skills. Lack of mastery was most evident in skills related to distinguishing relevant from irrelevant sources of information, appraising judgments and values that are involved in choosing a course of action and making inferences from data. However, for the most part, the students demonstrated a satisfactory level of mastery of social studies skills. During the 1981-82 school year, staff at various grade levels in social studies have been working together to design and select curriculum materials and learning experiences that will compensate for the inadequacies pointed out by the assessment. These new approaches and materials will be implemented during the

next school year. In addition, it is planned to readminister the skills-assessment instrument in the future to determine if student proficiency at the mastery level has been achieved in the areas previously identified as deficient.

Based on my experiences with conducting a local assessment, I would offer the following suggestions to those responsible for developing a locally developed objectives-referenced instrument:

1. It is important that the objectives or competencies to be measured are well defined. I would recommend NAEP objectives -- which benefit from the contributions by scholars in the field, teachers and lay persons -- as offering a useful framework for identification of local objectives.
2. Released items from the NAEP assessments, together with available descriptive and technical information, should be obtained to determine if they can be used to measure any of the locally generated objectives to be assessed. Including NAEP items on a local assessment instrument provides an invaluable way to compare the performance of local examinees with a national sample. Other sources should be tapped for additional items to measure objectives for which NAEP items may not be suitable.

3. Local assessment committees should explore the possibility and/or desirability of getting consultant help in designing a local assessment program. Consultant services are available from NAEP, state departments of public instruction and local colleges and universities.

4. A well-designed assessment instrument can serve as an excellent vehicle to diagnose and analyze weakness in a curricular program and can result in significantly improved programs and instruction. Instructional sequences can be targeted directly at the skills that have been tested to remediate student deficiencies.

5. In the context of the current accountability movement, the undertaking of a local assessment opens the opportunity for local social studies staff to define and describe social studies outcomes in an unambiguous fashion through the use of test specifications. Modifications in instructional plans based on the diagnosis of student strengths and weaknesses can serve as the basis of sustained and continuous improvement in the program of studies.

The reader is invited to contact the author directly for copies of the skills-assessment instrument; results referred to in this article; and information related to designing, administering and analyzing a local social studies

assessment. The following references are highly recommended for helpful information on assessing local social studies programs:

Citizenship and Social Studies Objectives. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1980.

Citizenship Objectives for 1974-75 Assessment. Denver, Colo.: National Assessment of Educational Progress, Education Commission of the States, 1972.

Fair, J. (Ed.). National Assessment and Social Studies Education: A Review of Assessments in Citizenship and Social Studies by the National Council for the Social Studies. Washington, D.C.: U. S. Government Printing Office, 1975.

Fox, K.F., Williams, P. L. and Winters, L. "Graduation Competency Testing in the Social Studies: A Position Statement of the National Council for the Social Studies." In Social Education, Vol. 43, May, 1979, pp. 367-372.

Morse, H. T. and McCune, G. H. Selected Items for the Testing of Study Skills and Critical Thinking. Bulletin 15. Washington, D. C.: National Council for the Social Studies, 1964.

Popham, W. J. Criterion-Referenced Measurement. Englewood Cliffs, N. J.: Prentice-Hall, 1978.

Williams, Paul L. and Moore, J. R. (Eds.). Criterion-Referenced Testing for the Social Studies. Bulletin 64. Washington, D.C.: National Council for the Social Studies, 1980.

APPENDIX -- SOCIAL STUDIES SKILLS OBJECTIVES

A. Identifies the central problem in a situation; identifies the major issue in a dispute.

   1. Clarifies vague and ambiguous terminology.
   2. Distinguishes among definitional, value and factual issues in a dispute.

B. Applies divergent thinking in formulating hypotheses and generalizations capable of being tested.

C. Identifies and locates sources of information and evaluates the reliability and relevance of these sources.

   1. Identifies and locates sources of information appropriate to the task.
   2. Distinguishes between relevant and irrelevant sources.
   3. Distinguishes between reliable and unreliable sources.

D. Demonstrates ability to use reliable sources of information.

   1. Uses more than one source to obtain information.
   2. Identifies points of agreement and disagreement among the sources.
   3. Evaluates the quality of the available information.

E. Organizes, analyzes, interprets and synthesizes information obtained from various sources.

   1. Identifies central elements in information.
   2. Classifies information.
   3. Distinguishes statements of fact from statements of opinion.
   4. Distinguishes statements of inference from statements of fact.
   5. Identifies stated opinions, biases and value judgments.
   6. Differentiates between points of view.
   7. Recognizes logical errors.
   8. Recognizes inadequacies or omissions in information.

9. Makes inferences from data.
10. Identifies cause and effect relationships.
11. Recognizes interrelationships among concepts.
12. Identifies nature of sample.
13. Identifies stated and unstated assumptions.
14. Summarizes information.

F. Uses summarized information to test hypotheses, draw conclusions, offer solutions to problems, clarify issues or make predictions.

G. Validates outcomes in investigation.

1. Tests solutions to problems or issues when possible.
2. Modifies solutions in light of new factors or considerations.
3. Analyzes trends and modifies predictions when necessary.

H. Appraises judgments and values that are involved in the choice of a course of action.

1. Identifies and weighs conflicting values which serve as a contradicting criteria for judging courses of action.
2. Develops a set of criteria for judging proposed courses of action in terms of actual and projected consequences.
3. Applies the established criteria to actual and projected consequences of a proposed course of action.
4. Selects and defends a position or course of action consistent with the established criteria.